

Put each polynomial in standard form. Then determine the degree, number of terms, end behavior and number of u-turns (humps).

1) $y = -9x^2(2x + 4x^3 - 9x^2)$

Stand. Form: _____

Degree: _____ Terms: _____

End. Beh: _____ U-turns: _____

2) $y = (3x^2 - 7)(x^2 + 2)$

Stand. Form: _____

Degree: _____ Terms: _____

End. Beh: _____ U-turns: _____

Solve each of the following polynomials.

3) $x^4 - 8x^3 + 12x^2 = 0$

4) $12x^3 = 10x^2 + 8x$

Roots: _____

Roots: _____

Find the polynomial function, in standard form, given the following roots:

5) $x = 0, 4, -7$

6) $x = -2, -1, 8$

Polynomial: _____

Polynomial: _____

7) $x = 0, 0, 4, -5$

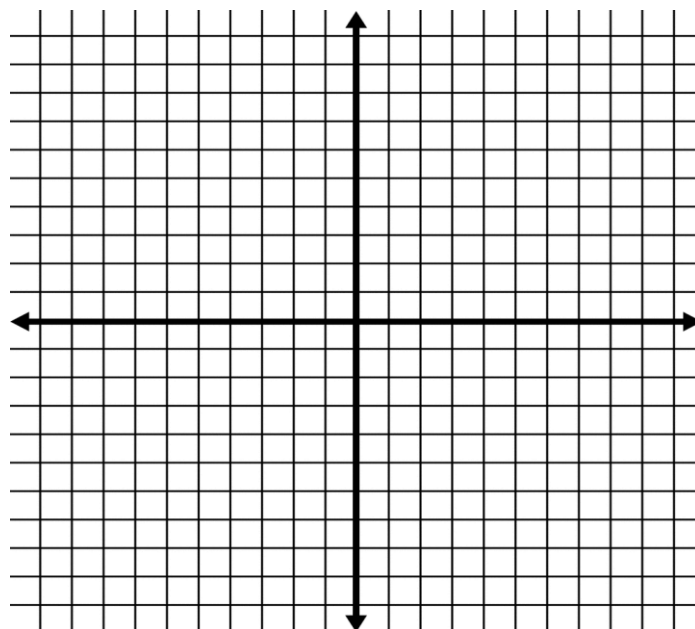
8) $x = 2, -2, 5$

Polynomial: _____

Polynomial: _____

Graph each of the polynomial functions. Be sure to fill in all of the requested information.

9) $y = -2x^3 + 8x^2 - 8x$



Zeros: _____

y-int: _____

End Behavior: _____

10) $f(x) = x^3 - 7x^2 + 14x - 8$

Maximum # of roots: _____

Possible rational roots: _____

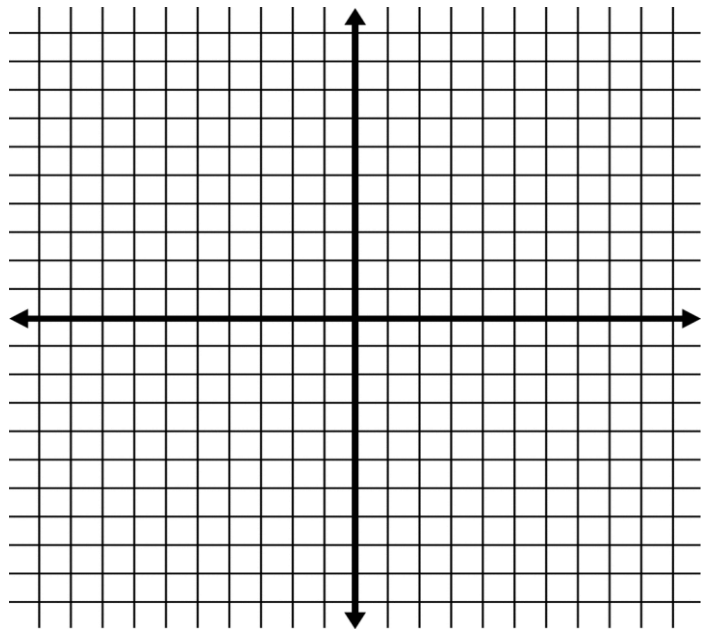
Factored form: _____

Actual roots: _____

y-intercept = _____

EB: _____ left, _____ right.

Workspace:



11) $f(x) = x^4 - 4x^3 - 13x^2 + 4x + 12$

Maximum # of roots: _____

Possible rational roots: _____

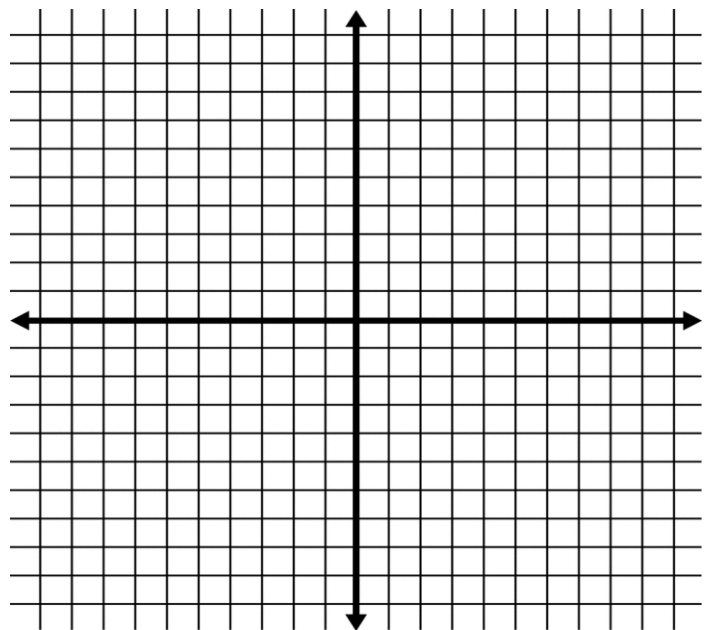
Factored form: _____

Actual roots: _____

y-intercept = _____

EB: _____ left, _____ right.

Workspace:



12) $f(x) = 2x^4 - 11x^3 - 6x^2 + 64x + 32$

Maximum # of roots: _____

Possible rational roots: _____

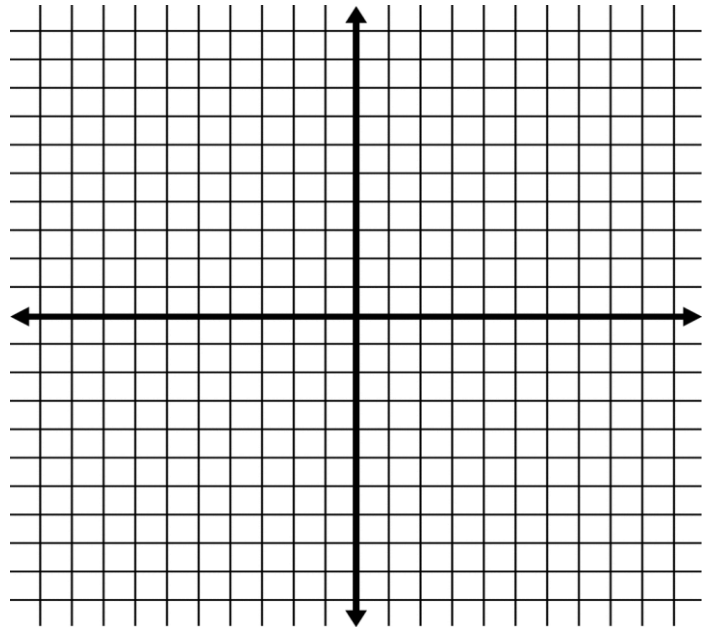
Factored form: _____

Actual roots: _____

y-intercept = _____

EB: _____ left, _____ right.

Workspace:



13) $f(x) = x^3 - 12x + 16$

Maximum # of roots: _____

Possible rational roots: _____

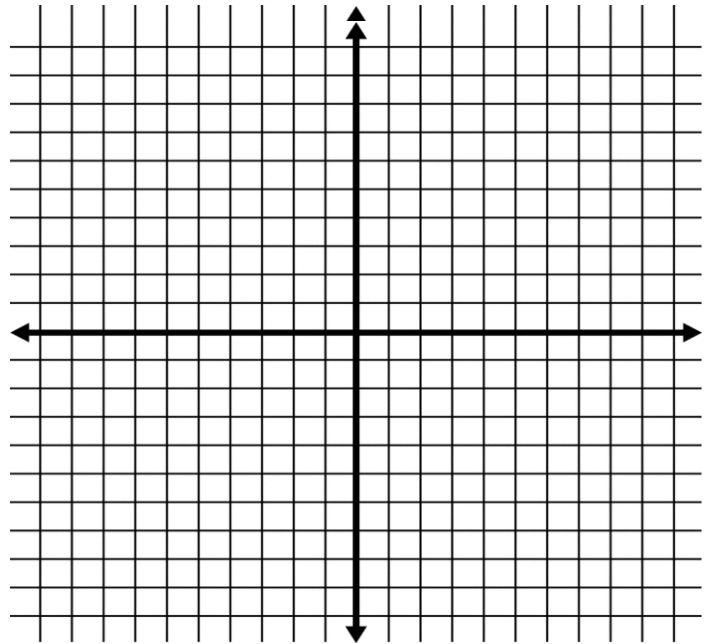
Factored form: _____

Actual roots: _____

y-intercept = _____

EB: _____ left, _____ right.

Workspace:



Find the requested information:

14) One factor of $f(x) = 4x^3 + 28x^2 - 9x - 63$ is $(x + 7)$. What are the other two **factors**?

Factors: _____

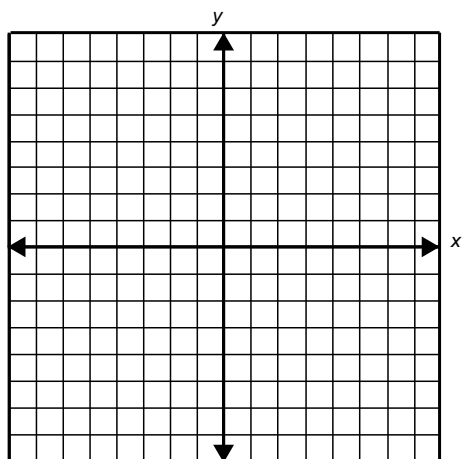
15) The function $f(x) = x^3 - 3x^2 - 28x + 60$ has three x-intercepts. One of the intercepts occurs at $x = -5$. What are the other two **x-intercepts**?

x-intercepts: _____

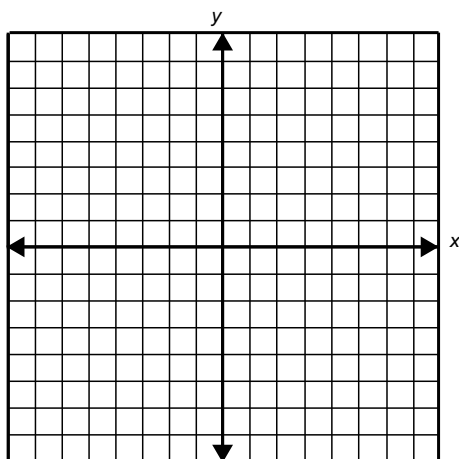
Cumulative Questions:

Graph the following functions using the grids below.

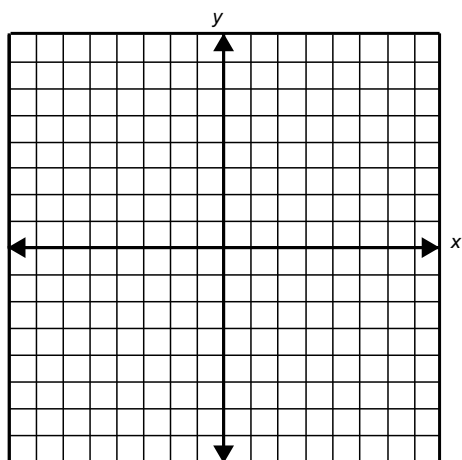
16) $y = -2|x + 4| - 3$



17) $y = (x + 4)^2 - 3$



18) $y = 3|x - 1| - 6$



19) $y = -\frac{1}{2}(x + 6)^2 + 4$

